

Unit 1:

Algebra and Numbers

Part A

Outcome AN1: Demonstrate an understanding of factors of whole numbers by determining the prime factors; greatest common factor; least common multiple; square root; and cube root.

(this outcome will be covered in Sections 3.1 and 3.2)

3.1 Factors and Multiples of Whole Numbers



LESSON FOCUS

Determine prime factors, greatest common factors, and least common multiples of whole numbers.

Make Connections

In these belts, the patterns are 12 beads long and 40 beads long. How many beads long must a belt be for it to be created using either pattern?



Activate Prior Learning:

Factors and Multiples



A factor is a number that divides exactly into another number.

What are the factors of 30?

The multiples of a number are determined by multiplying the number by 1, 2, 3, 4, and so on, or by skip counting.

What are some multiples of 12?



3.1 Factors and Multiples of Whole Numbers

Activate Prior Learning:

Prime Numbers

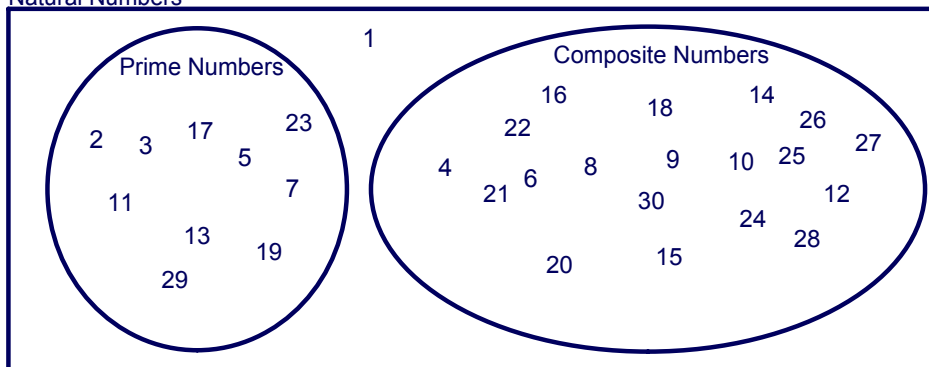


A prime number has exactly 2 factors, 1 and itself.

A composite number has more than 2 factors.

Sort these numbers.

Natural Numbers



3.1 Factors and Multiples of Whole Numbers

TRY THIS

Work with a partner.

- A. List some powers of 2. Make another list of powers of 3.
Pick a number from each list and multiply them to create a different number. What are the factors of this number?
What are some multiples of this number?
- B. Compare your number to your partner's number.
Which factors do the two numbers have in common?
Which factor is the greatest?
- C. What are some multiples the two numbers have in common?
Which multiple is the least?
- D. How can you use the product of powers from Step A to determine the greatest factor and the least multiple that the numbers have in common?

3.1 Factors and Multiples of Whole Numbers

Powers of 2:

$$2, 4, 8$$
$$2^1, 2^2, 2^3 \longrightarrow 2 \cdot 2 \cdot 2$$

Powers of 3:

$$3, 9, 27$$

$$4 \cdot 9$$
$$36$$

3.1 Factors and Multiples of Whole Numbers

Complete the table.

Product of a power of 2 and a power of 3	Factors	Multiples
36	1, 2, 3, 6, 12, 18, 36	72, 108

Circle the factors that the two numbers have in common.
Which factor is the greatest?

Circle the multiples that the two numbers have in common.
Which multiple is the least?

How can you use the product of powers to determine the greatest factor
and the least multiple that the numbers have in common?

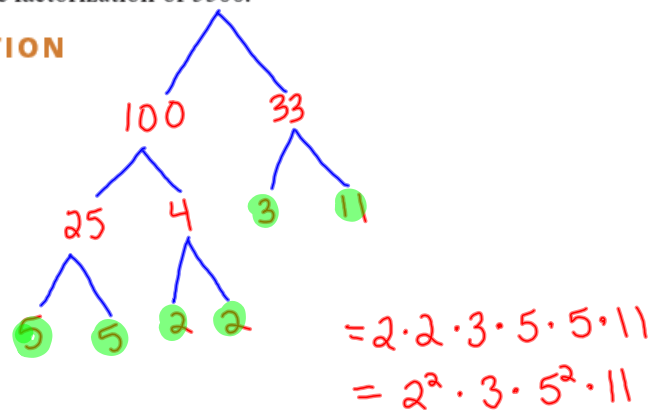
3.1 Factors and Multiples of Whole Numbers

Example 1 Determining the Prime Factors of a Whole Number

Write the prime factorization of 3300.

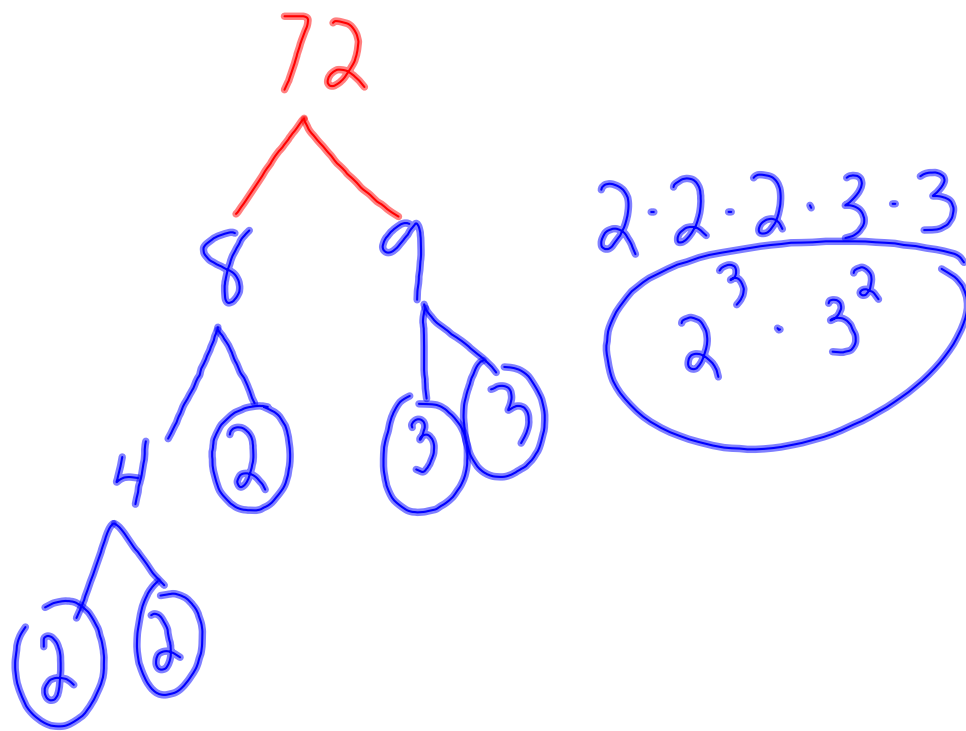
Math_Rocks!

 **SOLUTION**



CHECK YOUR UNDERSTANDING

3.1 Factors and Multiples of Whole Numbers



Warm-up #1

Date:

#1 What is a factor?

#2 What are the factors of the number 16?

#3 Tell me 3 multiples of the number 12.

#4 Draw a factor tree for the number 40

Warm-up #1

Date:

#1 What is a factor?

A factor is a number that divides exactly into another number.

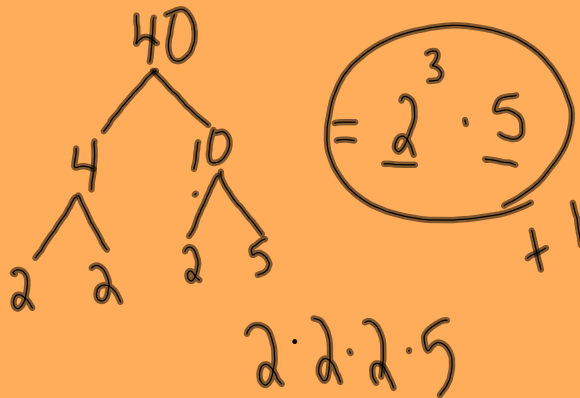
#2 What are the factors of the number 16?

1, 2, 4, 8, 16

#3 Tell me 3 multiples of the number 12.

12, 24, 36, 48

#4 Draw a factor tree for the number 40



Attachments

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